DAVIDSON FELLOWSHIP

Margaret A. Davidson Graduate Fellowship Newsletter

This issue of the newsletter features the fellows conducting research at the West Coast and Hawai`i national estuarine research reserves, as well as reflections on recent professional development.

Fellow Highlights

Emilio Grande, University of California – Santa Cruz and Elkhorn Slough Reserve, California

"Through my degree program and research experiences, I seek a career in academic research and teaching, and I believe this NOAA fellowship will afford me the opportunity to expand my research efforts, share my results with relevant stakeholders, and continue to build my network of researchers."

Project title: Nutrients' Fate and Transport in Pore Water En Route to a Coastal Estuary

Importance: Research on nitrate transport to coastal estuaries has typically focused on understanding the role of rivers as terrestrial point sources. Emilio's project through the Davidson Fellowship will contribute to the knowledge gap in pollutants' fate from diffuse groundwater, which remains understudied.

Sarah Tucker, University of Hawai'i at Mānoa and He`eia Reserve, Hawai`i

"I believe the role marine microbes play in ecosystem function is an underlooked area of conservation science. By further understanding the base of our marine food webs, we can better protect and manage our marine resources."

Project title: Developing a Baseline of Phytoplankton Dynamics in a Changing Ocean

Importance: In anticipation of climate change induced

declines in phytoplankton productivity that will result in massive food web shifts, Sarah's research examines indigenous resource management aimed at maximizing phytoplankton productivity, and develops a baseline of phytoplankton productivity that informs these management practices.

Edgar Guerron-Orejuela, University of South Florida and Kachemak Bay Reserve, Alaska

"I am interested in this research topic because I believe all stakeholders in a community play an important role in effective natural resources management."

Project title: Groundwater in Human-Natural Systems

Importance: Groundwater is an essential and finite resource that connects people and ecosystems. Edgar's project will study groundwater to better understand the system and identify which areas are most critical to maintain the delicate balance between human and natural users.

Elizabeth Elmstrom, University of Washington and Padilla Bay Reserve, Washington

"I am grateful for the opportunity to integrate my research with the reserve system. Having previously worked with the Waquoit Bay Reserve in Massachusetts, I recognize the value of the reserve system as a network for coastal scientists. I am excited to broaden my experience in estuarine science with Padilla Bay and to reconnect with the reserve system locally here in Washington!"

Project title: Ecosystem Metabolism of Temperate Eelgrass Meadows; Implications for "Blue" Carbon Storage and Sequestration in the Pacific Northwest

Importance: How coastal ecosystems sequester and store carbon is of critical importance to local and global carbon balances. Elizabeth's study will assess the carbon sink capacity of seagrass meadows in the Pacific Northwest, linking studies of productivity and respiration to blue carbon storage in temperate coastal environments.

Julie Gonzalez, University of California – Davis and San Francisco Bay Reserve, California

"The incredible resources that this fellowship opens up will allow me to focus my energy on work I find deeply rewarding,

and will hopefully benefit the habitats I have grown to love. I also look forward to the extra collaboration opportunities, training, and workshops the fellowship has given me access to. I'm excited and grateful for the opportunity to be a part of the first cohort, of what will certainly grow to be a large group of dedicated fellows who will work toward better management of estuaries in each of the reserve sites."

Project title: Effects of Sea Level Rise and Biological Invasions on Salt Marsh Communities in Central California

Importance: Effective coastal management requires understanding how stressors like invasive species and sea level rise will affect shoreline habitats. Julie's research will reveal how biological invasions and increased inundation can affect tidal marsh communities, thereby informing best practices for marsh restoration and conservation.

Taylor Dodrill, Portland State University and South Slough Reserve, Oregon

"I am interested in how water quality in estuaries impacts phytoplankton communities, because phytoplankton form the base of estuarine food webs. Healthy phytoplankton communities are important to maintaining so many ecosystem services we value in estuarine habitats. In some cases, water quality can be managed to maintain these healthy phytoplankton communities, so it feels like a great area of research to make a difference in the health of estuaries, from the bottom of the food web on up."

Project title: Evaluating Nutritional Quality of Phytoplankton as a Food Resource for Shellfish in Southern Oregon Estuaries

Importance: Phytoplankton provide an important food resource for shellfish, which are of great commercial and cultural importance to coastal communities. Taylor's research will examine which environmental factors support nutritious phytoplankton communities, and what conditions cause low quality phytoplankton and harmful algal blooms in Southern Oregon estuaries.

Nancy Torres, University of San Diego and Tijuana River Reserve, California

"[The Davidson Fellowship] allows me to connect with and be mentored by people invested in making positive change to our coastal environment."

Project title: Assessing Ecosystem Health through

Contaminant

Importance: Looking at how an ecosystem's health has responded to changing inputs and management in the past can provide insight into how to best manage it for the future. Nancy's research will provide a much needed characterization of the Tijuana River estuary's contamination levels over the past decades to better guide management efforts to mitigate its prominent pollution issue moving forward.

Reflections on Professional Development

Planning Effective Projects for Coastal Communities – Through this interactive workshop, fellows learned how to conduct a needs assessment, use a logic model to reassess their current approach or plan a future project, and prepare for a meaningful evaluation.

"I have not had any training in planning projects before, and honestly didn't know how important it is before taking this course. This course has given me a tool for a process that I used to go through with very little formality or organization."

"This course made me think more critically about achieving the outcomes of the project and the steps that are needed to get there. In general, I see how the information from the course could be applied to lots of different types of work in my career, and feel like I will continue to use this knowledge and resources for many years to come."

"I'll continue to use logic models to help me to communicate the broader impacts of my research. Also, this will be extremely helpful while writing grant proposals in the future in terms of organizing my thoughts and identifying useful objectives and outcomes that can be linked back to specific actions."

About the Program

This fellowship program honors the legacy of Margaret A. Davidson, a visionary and pioneer in the world of coastal resource management. The Margaret A. Davidson Graduate Fellowship emphasizes professional development, mentoring, and innovation, and offers students admitted to or enrolled in a master's or doctoral program the opportunity to conduct research within one of the 29 national estuarine research reserves. For more information, and to see a list of the full 2020 to 2022 cohort, *coast.noaa.gov/nerrs/research/davidson-fellowship.html*

Program Timeline

Summer 2021 – Call for applications for the 2022 to 2024 cohort
December 2021 – Applications due for the 2022 to 2024 cohort

August 1, 2022 – Start date for the 2022 to 2024 cohort